

SEQUENCE LISTING

<110> Birkett, Ashley J.

<120> IMMUNOGENIC Hbc CHIMER PARTICLES HAVING ENHANCED STABILITY

<130> 4564/81175 ICC-102.2

<140> NOT YET ASSIGNED

<141> 2001-08-15

<150> 60/226,867

<151> 2000-08-22

<150> 60/225,843

<151> 2000-08-16

<160> 313

<170> PatentIn Ver. 2.1

<210> 1

<211> 16

<212> PRT

<213> Plasmodium falciparum

<400> 1

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<210> 2

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 2

Glu	Tyr	Leu	Asn	Lys	Ile	Gln	Asn	Ser	Leu	Ser	Thr	Glu	Trp	Ser	Pro
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Ala Ser Val Thr

20

<210> 3

<211> 15

<212> PRT

<213> Streptococcus pneumoniae

<400> 3

Lys	Leu	Glu	Glu	Leu	Ser	Asp	Lys	Ile	Asp	Glu	Leu	Asp	Ala	Glu
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<210> 4

<211> 35

<212> PRT

<213> Streptococcus pneumoniae

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 Gln Lys Lys Tyr Asp Glu Asp Gln Lys Lys Thr Glu Glu Lys Ala Ala
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 Leu Glu Lys Ala Ala Ser Glu Glu Met Asp Lys Ala Val Ala Ala Val
 20 25 30
 Gln Gln Ala
 35

<210> 5
 <211> 27
 <212> PRT
 <213> Cryptosporidium parvum

<400> 5
 Gln Asp Lys Pro Ala Asp Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu
 1 5 10 15
 Pro Ala Ala Gln Gln Asp Lys Pro Ala Asp Ala
 20 25

<210> 6
 <211> 17
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 6
 Arg Lys Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Ile Thr Lys
 1 5 10 15
 Asn

<210> 7
 <211> 31
 <212> PRT
 <213> Foot-and-mouth disease virus

<400> 7
 Tyr Asn Gly Glu Cys Arg Tyr Asn Arg Asn Ala Val Pro Asn Leu Arg
 1 5 10 15
 Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala Arg Thr Leu Pro
 20 25 30

<210> 8
 <211> 10
 <212> PRT
 <213> Influenza A virus

<400> 8
 Tyr Arg Asn Leu Leu Trp Leu Thr Glu Lys
 1 5 10

<210> 9
 <211> 23
 <212> PRT
 <213> Influenza A virus

<400> 9
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
 1 5 10 15
 Arg Cys Asn Gly Ser Ser Asp
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<210> 10
 <211> 23
 <212> PRT
 <213> Influenza A virus

<400> 10
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
 1 5 10 15
 Arg Cys Asn Asp Ser Ser Asp
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<210> 11
 <211> 142
 <212> PRT
 <213> Yersinia pestis

<400> 11
 Asp Ile Leu Lys Val Ile Val Asp Ser Met Asn His His Gly Asp Ala
 1 5 10 15
 Arg Ser Lys Leu Arg Glu Glu Leu Ala Glu Leu Thr Ala Glu Leu Lys
 20 25 30
 Ile Tyr Ser Val Ile Gln Ala Glu Ile Asn Lys His Leu Ser Ser Ser
 35 40 45
 Gly Thr Ile Asn Ile His Asp Lys Ser Ile Asn Leu Met Asp Lys Asn
 50 55 60
 Leu Tyr Gly Tyr Thr Asp Glu Glu Ile Phe Lys Ala Ser Ala Glu Tyr
 65 70 75 80
 Lys Ile Leu Glu Lys Met Pro Gln Thr Thr Ile Gln Val Asp Gly Ser
 85 90 95
 Glu Lys Lys Ile Val Ser Ile Lys Asp Phe Leu Gly Ser Glu Asn Lys
 100 105 110
 Arg Thr Gly Ala Leu Gly Asn Leu Lys Asn Ser Tyr Ser Tyr Asn Lys
 115 120 125
 Asp Asn Asn Glu Leu Ser His Phe Ala Thr Thr Cys Ser Asp
 130 135 140

<210> 12
 <211> 19
 <212> PRT
 <213> Haemophilus influenzae

<400> 12
 Cys Ser Ser Ser Asn Asn Asp Ala Ala Gly Asn Gly Ala Ala Gln Phe
 1 5 10 15

Gly Gly Tyr

<210> 13
 <211> 11
 <212> PRT
 <213> Haemophilus influenzae

<400> 13
 Asn Lys Leu Gly Thr Val Ser Tyr Gly Glu Glu
 1 5 10

<210> 14
 <211> 16
 <212> PRT
 <213> Haemophilus influenzae

<400> 14
 Asn Asp Glu Ala Ala Tyr Ser Lys Asn Arg Arg Ala Val Leu Ala Tyr
 1 5 10 15

<210> 15
 <211> 28
 <212> PRT
 <213> Moraxella catarrhalis

<400> 15
 Leu Asp Ile Glu Lys Asp Lys Lys Lys Arg Thr Asp Glu Gln Leu Gln
 1 5 10 15

Ala Glu Leu Asp Asp Lys Tyr Ala Gly Lys Gly Tyr
 20 25

<210> 16
 <211> 28
 <212> PRT
 <213> Moraxella catarrhalis

<400> 16
 Leu Asp Ile Glu Lys Asn Lys Lys Lys Arg Thr Glu Ala Glu Leu Gln
 1 5 10 15

Ala Glu Leu Asp Asp Lys Tyr Ala Gly Lys Gly Tyr
 20 25

<210> 17
 <211> 27
 <212> PRT
 <213> *Moraxella catarrhalis*

<400> 17
 Ile Asp Ile Glu Lys Lys Gly Lys Ile Arg Thr Glu Ala Leu Leu Ala
 1 5 10 15
 Glu Leu Asn Lys Asp Tyr Pro Gly Gln Gly Tyr
 20 25

<210> 18
 <211> 25
 <212> PRT
 <213> *Porphyromonas gingivalis*

<400> 18
 Gly Val Ser Pro Lys Val Cys Lys Asp Val Thr Val Glu Gly Ser Asn
 1 5 10 15
 Glu Phe Ala Pro Val Gln Asn Leu Thr
 20 25

<210> 19
 <211> 20
 <212> PRT
 <213> *Porphyromonas gingivalis*

<400> 19
 Arg Ile Gln Ser Thr Trp Arg Gln Lys Thr Val Asp Leu Pro Ala Gly
 1 5 10 15
 Thr Lys Tyr Val
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<210> 20
 <211> 21
 <212> PRT
 <213> *Trypanosoma cruzi*

<400> 20
 Lys Ala Ala Ile Ala Pro Ala Lys Ala Ala Ala Ala Pro Ala Lys Ala
 1 5 10 15
 Ala Thr Ala Pro Ala
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<210> 21
 <211> 24
 <212> PRT
 <213> *Plasmodium falciparum*

<400> 21

Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

Asn Ala Asn Pro Asn Val Asp Pro
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<210> 22

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 22

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1 5 10 15

Asn Ala Asn Pro
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<210> 23

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 23

Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val Asp Pro
1 5 10 15

Asn Ala Asn Pro
20

<210> 24

<211> 28

<212> PRT

<213> Plasmodium falciparum

<400> 24

Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro
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<210> 25

<211> 20

<212> PRT

<213> Plasmodium falciparum

<400> 25

Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala
1 5 10 15

Asn Pro Asn Val
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<210> 26
<211> 22
<212> PRT
<213> Plasmodium falciparum

<400> 26
Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala
1 5 10 15

Asn Pro Asn Val Asp Pro
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<210> 27
<211> 24
<212> PRT
<213> Plasmodium falciparum

<400> 27
Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala
1 5 10 15

Asn Pro Asn Val Asp Pro Asn Ala
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<210> 28
<211> 18
<212> PRT
<213> Plasmodium falciparum

<400> 28
Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

Asn Val

<210> 29
<211> 20
<212> PRT
<213> Plasmodium falciparum

<400> 29
Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
1 5 10 15

Asn Val Asp Pro
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<210> 30
<211> 22
<212> PRT
<213> Plasmodium falciparum

<400> 30
 Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
 1 5 10 15

Asn Val Asp Pro Asn Ala
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<210> 31
 <211> 16
 <212> PRT
 <213> Plasmodium falciparum

<400> 31
 Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
 1 5 10 15

<210> 32
 <211> 18
 <212> PRT
 <213> Plasmodium falciparum

<400> 32
 Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
 1 5 10 15

Asp Pro

<210> 33
 <211> 20
 <212> PRT
 <213> Plasmodium falciparum

<400> 33
 Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val
 1 5 10 15

Asp Pro Asn Ala
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<210> 34
 <211> 19
 <212> PRT
 <213> Plasmodium vivax

<400> 34
 Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln
 1 5 10 15

Pro Ala Gly

<210> 35
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 35
 Arg Ala Asp Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Gly Gln Pro
 1 5 10 15

Ala Gly

<210> 36
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 36
 Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
 1 5 10 15

Pro Gly

<210> 37
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 37
 Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp Gln
 1 5 10 15

Pro Gly

<210> 38
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 38
 Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Asp Asn Gln
 1 5 10 15

Pro Gly

<210> 39
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 39
 Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp Gln
 1 5 10 15

Pro Gly

<210> 40
<211> 22
<212> PRT
<213> Plasmodium vivax

<400> 40
Ala Pro Gly Ala Asn Gln Gly Gly Ala Ala Ala Pro Gly Ala Asn
1 5 10 15
Gln Gly Gly Ala Ala
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<210> 41
<211> 16
<212> PRT
<213> Plasmodium berghei

<400> 41
Asp Pro Pro Pro Pro Asn Pro Asn Asp Pro Pro Pro Pro Asn Pro Asn
1 5 10 15

<210> 42
<211> 24
<212> PRT
<213> Plasmodium yoelii

<400> 42
Gln Gly Pro Gly Ala Pro Gln Gly Pro Gly Ala Pro Gln Gly Pro Gly
1 5 10 15
Ala Pro Gln Gly Pro Gly Ala Pro
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<210> 43
<211> 15
<212> PRT
<213> Streptococcus sobrinus

<400> 43
Lys Pro Arg Pro Ile Tyr Glu Ala Lys Leu Ala Gln Asn Gln Lys
1 5 10 15

<210> 44
<211> 16
<212> PRT
<213> Streptococcus sobrinus

<400> 44
Ala Lys Ala Asp Tyr Glu Ala Lys Leu Ala Gln Tyr Glu Lys Asp Leu
1 5 10 15

<210> 45
<211> 9
<212> PRT
<213> Shigella flexneri

<400> 45
 Lys Asp Arg Thr Leu Ile Glu Gln Lys
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<210> 46
 <211> 15
 <212> PRT
 <213> respiratory syncytial virus

<400> 46
 Cys Ser Ile Cys Ser Asn Asn Pro Thr Cys Trp Ala Ile Cys Lys
 1 5 10 15

<210> 47
 <211> 25
 <212> PRT
 <213> Entamoeba histolytica

<400> 47
 Val Glu Cys Ala Ser Thr Val Cys Gln Asn Asp Asn Ser Cys Pro Ile
 1 5 10 15

Ile Ala Asp Val Glu Lys Cys Asn Gln
 20 25

<210> 48
 <211> 34
 <212> PRT
 <213> Schistosoma japonicum

<400> 48
 Asp Leu Gln Ser Glu Ile Ser Leu Ser Leu Glu Asn Gly Glu Leu Ile
 1 5 10 15

Arg Arg Ala Lys Ser Ala Glu Ser Leu Ala Ser Glu Leu Gln Arg Arg
 20 25 30

Val Asp

<210> 49
 <211> 34
 <212> PRT
 <213> Schistosoma mansoni

<400> 49
 Asp Leu Gln Ser Glu Ile Ser Leu Ser Leu Glu Asn Ser Glu Leu Ile
 1 5 10 15

Arg Arg Ala Lys Ala Ala Glu Ser Leu Ala Ser Asp Leu Gln Arg Arg
 20 25 30

Val Asp

<210> 50
<211> 16
<212> PRT
<213> Human immunodeficiency virus

<400> 50
Gly Pro Lys Glu Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Cys
1 5 10 15

<210> 51
<211> 17
<212> PRT
<213> Corynebacterium diphtheriae

<400> 51
Phe Gln Val Val His Asn Ser Tyr Asn Arg Pro Ala Tyr Ser Pro Gly
1 5 10 15

Cys

<210> 52
<211> 25
<212> PRT
<213> Borrelia burgdorferi

<400> 52
Val Glu Ile Lys Glu Gly Thr Val Thr Leu Lys Arg Glu Ile Asp Lys
1 5 10 15

Asn Gly Lys Val Thr Val Ser Leu Cys
20 25

<210> 53
<211> 19
<212> PRT
<213> Borrelia burgdorferi

<400> 53
Thr Leu Ser Lys Asn Ile Ser Lys Ser Gly Glu Val Ser Val Glu Leu
1 5 10 15

Asn Asp Cys

<210> 54
<211> 11
<212> PRT
<213> Influenza A virus

<400> 54
Ser Ser Val Ser Ser Phe Glu Arg Phe Glu Cys
1 5 10

<210> 55
 <211> 21
 <212> PRT
 <213> Trypanosoma cruzi

<400> 55
 Ser His Asn Phe Thr Leu Val Ala Ser Val Ile Ile Glu Glu Ala Pro
 1 5 10 15
 Ser Gly Asn Thr Cys
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<210> 56
 <211> 16
 <212> PRT
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<400> 56
 Ser Val Gln Ile Pro Lys Val Pro Tyr Pro Asn Gly Ile Val Tyr Cys
 1 5 10 15

<210> 57
 <211> 16
 <212> PRT
 <213> Plasmodium falciparum

<400> 57
 Asp Phe Asn His Tyr Tyr Thr Leu Lys Thr Gly Leu Glu Ala Asp Cys
 1 5 10 15

<210> 58
 <211> 18
 <212> PRT
 <213> Plasmodium falciparum

<400> 58
 Pro Ser Asp Lys His Ile Glu Gln Tyr Lys Lys Ile Lys Asn Ser Ile
 1 5 10 15

Ser Cys

<210> 59
 <211> 20
 <212> PRT
 <213> Plasmodium falciparum

<400> 59
 Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro
 1 5 10 15

Cys Ser Val Thr
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<210> 60
 <211> 19
 <212> PRT
 <213> Plasmodium vivax

<400> 60
 Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr Pro Cys
 1 5 10 15
 Ser Val Thr

<210> 61
 <211> 16
 <212> PRT
 <213> Streptococcus sobrinus

<400> 61
 Lys Pro Arg Pro Ile Tyr Glu Ala Lys Leu Ala Gln Asn Gln Lys Cys
 1 5 10 15

<210> 62
 <211> 17
 <212> PRT
 <213> Streptococcus sobrinus

<400> 62
 Ala Lys Ala Asp Tyr Glu Ala Lys Leu Ala Gln Tyr Glu Lys Asp Leu
 1 5 10 15

Cys

<210> 63
 <211> 16
 <212> PRT
 <213> Lymphocytic choriomeningitis virus

<400> 63
 Arg Pro Gln Ala Ser Gly Val Tyr Met Gly Asn Leu Thr Ala Gln Cys
 1 5 10 15

<210> 64
 <211> 16
 <212> PRT
 <213> Clostridium tetani

<400> 64
 Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu Cys
 1 5 10 15

<210> 65
 <211> 18
 <212> DNA
 <213> plasmid pKK223

<400> 65
 ggtgcatgca aggagatg 18

<210> 66
 <211> 55
 <212> DNA
 <213> plasmid pKK223

<400> 66
 gcgaagcttc ggatcccatg gtttttctc ccttatgtga aattgtttac cgctc 55

<210> 67
 <211> 24
 <212> DNA
 <213> Hepatitis B virus

<400> 67
 ttgggccatg gacatcgacc ctta 24

<210> 68
 <211> 29
 <212> DNA
 <213> Hepatitis B virus

<400> 68
 gcggaattcc ttccaaatta acacccacc 29

<210> 69
 <211> 38
 <212> DNA
 <213> Hepatitis B virus

<400> 69
 cgcaattca aaaagagctc gatccagcgt ctagagac 38

<210> 70
 <211> 31
 <212> DNA
 <213> Hepatitis B virus

<400> 70
 cgcaagctta aacaacagta gtctccggaa g 31

<210> 71
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: human
 cytochrome 450

<400> 71
 cgagctgtac atttgcgttt tcgtctagct gtttttcttg 40

<210> 72
 <211> 31
 <212> DNA
 <213> Hepatitis B virus

 <400> 72
 gcggaattcc atcttccaaa ttaacaccca c 31

 <210> 73
 <211> 39
 <212> DNA
 <213> Hepatitis B virus

 <400> 73
 cgcggaattca aaaagagctc ccagcgtcta gagacctag 39

 <210> 74
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: human
 cytochrome P450

 <400> 74
 caagaaaaac agctagacga aaacgcaaatt gtacagctc 39

 <210> 75
 <211> 42
 <212> DNA
 <213> Hepatitis B virus

 <400> 75
 cgcaagctta gagctcttga attccaacaa cagtagtctc cg 42

 <210> 76
 <211> 28
 <212> DNA
 <213> Hepatitis B virus

 <400> 76
 cgcgagctcc cagcgtctag agacctag 28

 <210> 77
 <211> 17
 <212> DNA
 <213> plasmid pKK223

 <400> 77
 gtatcaggct gaaaatc 17

<210> 78
 <211> 19
 <212> PRT
 <213> Plasmodium falciparum

<400> 78
 Ile Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
 1 5 10 15

Pro Glu Leu

<210> 79
 <211> 57
 <212> DNA
 <213> Plasmodium falciparum

<400> 79
 aattaacgct aatccgaacg ctaatccgaa cgctaataccg aacgctaatac cggagct 57

<210> 80
 <211> 49
 <212> DNA
 <213> Plasmodium falciparum

<400> 80
 ccggattagc gttcggatta gcgttcggat tagcgttcgg attagcggt 49

<210> 81
 <211> 31
 <212> PRT
 <213> Plasmodium falciparum

<400> 81
 Ile Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn
 1 5 10 15

Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Glu Leu
 20 25 30

<210> 82
 <211> 93
 <212> DNA
 <213> Plasmodium falciparum

<400> 82
 aattaacgct aatccgaacg ttgacccgaa cgctaataccg aacgctaatac cgaacgctaa 60
 tccgaacggt gacccgaacg ctaatccgga gct 93

<210> 83
 <211> 91
 <212> DNA
 <213> Plasmodium falciparum

<400> 83
 ggaggtccgg attagcggtc ggggtcaacgt tcggattagc gtccggatta gcgttcggat 60
 tagcggttcgg gtcaacgttc ggattagcgt t 91

<210> 84
 <211> 23
 <212> PRT
 <213> Plasmodium falciparum

<400> 84
 Ile Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn
 1 5 10 15

Pro Asn Ala Asn Pro Glu Leu
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<210> 85
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

<400> 85
 aattaacgcg aatccgaacg tggatccgaa tgccaaccct aacgccaacc caaatgcgaa 60
 ccagagct 69

<210> 86
 <211> 61
 <212> DNA
 <213> Plasmodium falciparum

<400> 86
 ctgggttcgc atttgggttg gcgttagggg tggcattcgg atccacgttc ggattcgcgt 60
 t 61

<210> 87
 <211> 23
 <212> PRT
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<400> 87
 Ile Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Val Asp
 1 5 10 15

Pro Asn Ala Asn Pro Glu Leu
 20

<210> 88
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

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 ccagagct 69

<210> 89
 <211> 61
 <212> DNA
 <213> Plasmodium falciparum

<400> 89
 ctgggttcgc attcggatcc acgtttgggt tggcgtagg gttggcattc ggattcgcgt 60
 t 61

<210> 90
 <211> 31
 <212> PRT
 <213> Plasmodium falciparum

<400> 90
 Ile Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn
 1 5 10 15

Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Glu Leu
 20 25 30

<210> 91
 <211> 93
 <212> DNA
 <213> Plasmodium falciparum

<400> 91
 aattaacgcg aatccgaacg tggatccaaa tgccaaccct aacgctaate caaacgccaa 60
 cccgaatgtt gaccccaatg ccaatccgga gct 93

<210> 92
 <211> 85
 <212> DNA
 <213> Plasmodium falciparum

<400> 92
 ccggattggc attgggggtca acattcgggt tggcgtttgg attagcggtta ggggttggcat 60
 ttggatccac gttcggattc gcgtt 85

<210> 93
 <211> 23
 <212> PRT
 <213> Plasmodium falciparum

<400> 93
 Ile Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
 1 5 10 15

Ala Asn Pro Asn Val Glu Leu
 20

<210> 94
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

<400> 94
aattaatccg aacgtggatc caaatgccaa ccctaacgct aatccaaacg ccaaccgaa 60
tgttgagct 69

<210> 95
<211> 61
<212> DNA
<213> Plasmodium falciparum

<400> 95
caacattcgg gttggcggtt ggattagcgt taggggtggc atttgatcc acgttcggat 60
t 61

<210> 96
<211> 25
<212> PRT
<213> Plasmodium falciparum

<400> 96
Ile Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15
Ala Asn Pro Asn Val Asp Pro Glu Leu
20 25

<210> 97
<211> 75
<212> DNA
<213> Plasmodium falciparum

<400> 97
aattaatccg aacgtggatc caaatgccaa ccctaacgct aatccaaacg ccaaccgaa 60
tgttgaccct gagct 75

<210> 98
<211> 67
<212> DNA
<213> Plasmodium falciparum

<400> 98
cagggtcaac attcgggttg gcgtttggat tagcgtagg gttggcattt ggatccacgt 60
tcggatt 67

<210> 99
<211> 27
<212> PRT
<213> Plasmodium falciparum

<400> 99
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1 5 10 15
Ala Asn Pro Asn Val Asp Pro Asn Ala Glu Leu
20 25

<210> 100
 <211> 81
 <212> DNA
 <213> Plasmodium falciparum

<400> 100
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 tgttgaccct aatgctgagc t 81

<210> 101
 <211> 73
 <212> DNA
 <213> Plasmodium falciparum

<400> 101
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 ccacgttcgg att 73

<210> 102
 <211> 21
 <212> PRT
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<400> 102
 Ile Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
 1 5 10 15

Pro Asn Val Glu Leu
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<210> 103
 <211> 63
 <212> DNA
 <213> Plasmodium falciparum

<400> 103
 aattaacgtg gatccaaatg ccaaccctaa cgctaatacca aacgccaaac cgaatgttga 60
 gct 63

<210> 104
 <211> 55
 <212> DNA
 <213> Plasmodium falciparum

<400> 104
 caacattcgg gttggcggtt ggattagcgt tagggttggc atttgatcc acgtt 55

<210> 105
 <211> 23
 <212> PRT
 <213> Plasmodium falciparum

<400> 105
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 1 5 10 15

Pro Asn Val Asp Pro Glu Leu
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<210> 106
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

<400> 106
 aattaacgtg gatccaaatg ccaaccctaa cgctaatacca aacgccaacc cgaatgttga 60
 ccctgagct 69

<210> 107
 <211> 61
 <212> DNA
 <213> Plasmodium falciparum

<400> 107
 cagggtcaac attcgggttg gcgtttggat tagcgtagg gttggcattt ggatccacgt 60
 t 61

<210> 108
 <211> 25
 <212> PRT
 <213> Plasmodium falciparum

<400> 108
 Ile Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
 1 5 10 15

Pro Asn Val Asp Pro Asn Ala Glu Leu
 20 25

<210> 109
 <211> 75
 <212> DNA
 <213> Plasmodium falciparum

<400> 109
 aattaacgtg gatccaaatg ccaaccctaa cgctaatacca aacgccaacc cgaatgttga 60
 ccctaagtct gagct 75

<210> 110
 <211> 67
 <212> DNA
 <213> Plasmodium falciparum

<400> 110
 cagcattagg gtcaacattc gggttggcgt ttggattagc gttagggttg gcatttggat 60
 ccacgtt 67

<210> 111
<211> 19
<212> PRT
<213> Plasmodium falciparum

<400> 111
Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Val Glu Leu

<210> 112
<211> 57
<212> DNA
<213> Plasmodium falciparum

<400> 112
aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aaccgaatg ttgagct 57

<210> 113
<211> 49
<212> DNA
<213> Plasmodium falciparum

<400> 113
caacattcgg gttggcggtt ggattagcgt tagggttggc atttgatc 49

<210> 114
<211> 21
<212> PRT
<213> Plasmodium falciparum

<400> 114
Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Val Asp Pro Glu Leu
20

<210> 115
<211> 63
<212> DNA
<213> Plasmodium falciparum

<400> 115
aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aaccgaatg ttgacctga 60
gct 63

<210> 116
<211> 55
<212> DNA
<213> Plasmodium falciparum

<400> 116
cagggtcaac attcgggttg gcgttttgat tagcgttagg gttggcattt ggatc 55

<210> 117
 <211> 23
 <212> PRT
 <213> Plasmodium falciparum

<400> 117
 Ile Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
 1 5 10 15
 Val Asp Pro Asn Ala Glu Leu
 20

<210> 118
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

<400> 118
 aattgatcca aatgccaacc ctaacgctaa tccaaacgcc aaccggaatg ttgaccctaa 60
 tgccgagct 69

<210> 119
 <211> 61
 <212> DNA
 <213> Plasmodium falciparum

<400> 119
 cggcattagg gtcaacattc gggttggcgt ttggattagc gttagggttg gcatttggat 60
 c 61

<210> 120
 <211> 21
 <212> PRT
 <213> Plasmodium falciparum

<400> 120
 Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser
 1 5 10 15
 Pro Cys Ser Val Thr
 20

<210> 121
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

<400> 121
 aattgaatat ctgaacaaaa tccagaactc tctgtccacc gaatggtctc cgtgctccgt 60
 tacctagta 69

<210> 122
 <211> 69
 <212> DNA
 <213> Plasmodium falciparum

<400> 122
 agcttactag gtaacggagc acggagacca ttcggtggac agagagttct ggattttgtt 60
 cagatatctc 69

<210> 123
 <211> 24
 <212> PRT
 <213> Plasmodium vivax

<400> 123
 Ile Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala
 1 5 10 15

Ala Gly Gln Pro Ala Gly Glu Leu
 20

<210> 124
 <211> 72
 <212> DNA
 <213> Plasmodium vivax

<400> 124
 aattccggct ggtgaccgtg cagatggcca gccagcgggt gaccgcgctg caggccagcc 60
 ggctggcgag ct 72

<210> 125
 <211> 64
 <212> DNA
 <213> Plasmodium vivax

<400> 125
 cgccagccgg ctggcctgca gcgcgggtcac ccgctggctg gccatctgca cggtcaccag 60
 ccgg 64

<210> 126
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 126
 Ile Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln
 1 5 10 15

Pro Ala Gly Glu Leu
 20

<210> 127
 <211> 63
 <212> DNA
 <213> Plasmodium vivax

<400> 127
aattgacaga gcagccggac aaccagcagg cgatcgagca gacggacagc ccgcagggga 60
gct 63

<210> 128
<211> 55
<212> DNA
<213> Plasmodium vivax

<400> 128
cccctgcggg ctgtccgtct gtcgatgcg ctgtcgggtg tccggctgct ctgtc 55

<210> 129
<211> 21
<212> PRT
<213> Plasmodium vivax

<400> 129
Ile Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp
1 5 10 15
Gln Pro Gly Glu Leu
20

<210> 130
<211> 63
<212> DNA
<213> Plasmodium vivax

<400> 130
aattgcgaac ggcccggtg atcagccggg ggcaaacggc gccgggtgatc aaccagggga 60
gct 63

<210> 131
<211> 55
<212> DNA
<213> Plasmodium vivax

<400> 131
cccctggttg atcaccgcg ccgtttgccc ccgctgatt accggcgcg ttcgc 55

<210> 132
<211> 21
<212> PRT
<213> Plasmodium vivax

<400> 132
Ile Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp
1 5 10 15
Gln Pro Gly Glu Leu
20

<210> 133
 <211> 63
 <212> DNA
 <213> Plasmodium vivax

<400> 133
 aattgcgaac ggccgagata atcagccggg tgcaaacggg gcggatgacc aaccaggcga 60
 gct 63

<210> 134
 <211> 55
 <212> DNA
 <213> Plasmodium vivax

<400> 134
 gcctggtg gtcacccgc ccgtttgcac ccggtgatt atcgccgcg ttcgc 55

<210> 135
 <211> 39
 <212> PRT
 <213> Plasmodium vivax

<400> 135
 Ile Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp
 1 5 10 15
 Gln Pro Gly Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala
 20 25 30
 Asp Asp Gln Pro Gly Glu Leu
 35

<210> 136
 <211> 117
 <212> DNA
 <213> Plasmodium vivax

<400> 136
 aattgcgaac ggcccggtg atcagccggg agcaaacggc gcgggggac aaccaggcgc 60
 caatggtgca gacaaccagc ctggggcgaa tggagccgat gaccaaccg gcgagct 117

<210> 137
 <211> 109
 <212> DNA
 <213> Plasmodium vivax

<400> 137
 ccggggttg gtcacggct ccattcgccc caggctggtt gtctgcacca ttggcgcccg 60
 gtgatcccc ccgcccgttt gctcccggct gattaccggc gccgttcgc 109

<210> 138
 <211> 25
 <212> PRT
 <213> Plasmodium vivax

<400> 138
 Ile Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala Ala Pro Gly Ala
 1 5 10 15

Asn Gln Glu Gly Gly Ala Ala Glu Leu
 20 25

<210> 139
 <211> 75
 <212> DNA
 <213> Plasmodium vivax

<400> 139
 aattgcgccg ggcgccaacc aggaaggtgg ggctgcagcg ccaggagcca atcaagaagg 60
 cggtgcagcg gagct 75

<210> 140
 <211> 67
 <212> DNA
 <213> Plasmodium vivax

<400> 140
 ccgctgcacc gcctttctga ttggctcctg gcgctgcagc cccaccttcc tggttggcgc 60
 ccggcgc 67

<210> 141
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 141
 Ile Glu Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr
 1 5 10 15

Pro Cys Ser Val Thr
 20

<210> 142
 <211> 69
 <212> DNA
 <213> Plasmodium vivax

<400> 142
 aattgaatat ctggataaag tgcgtgcgac cggtggcacg gaatggactc cgtgcagcgt 60
 gacctaata 69

<210> 143
 <211> 69
 <212> DNA
 <213> Plasmodium vivax

<400> 143
 agcttattag gtcacgctgc acggagtcca ttccgtgccac acggctgcac gcactttatc 60
 cagatatcc 69

<210> 144
<211> 10
<212> PRT
<213> Plasmodium falciparum

<400> 144
Thr Val Ser Ala Pro Ser Trp Glu Thr Ser
1 5 10

<210> 145
<211> 42
<212> DNA
<213> Plasmodium falciparum

<400> 145
gccaaagctta ctaggtaacg gaggccggag accattcggg gg 42

<210> 146
<211> 44
<212> DNA
<213> Plasmodium vivax

<400> 146
cgcggaattca agcgaacggc gccgataatc agccggcggg tgca 44

<210> 147
<211> 8
<212> PRT
<213> Hepatitis B virus

<400> 147
Cys Val Val Thr Thr Glu Pro Leu
1 5

<210> 148
<211> 37
<212> DNA
<213> Hepatitis B virus

<400> 148
cgcaagctta ctagcaaaca acagtagtgtt ccggaag 37

<210> 149
<211> 7
<212> PRT
<213> Hepatitis B virus

<400> 149
Pro Leu Thr Ser Leu Ile Pro
1 5

<210> 150
<211> 32
<212> DNA
<213> Hepatitis B virus

<400> 150
cgcaagctta cggaagtgtt gataggatag gg

32

<210> 151
<211> 8
<212> PRT
<213> Hepatitis B virus

<400> 151
Thr Ser Leu Ile Pro Ala Asn Pro
1 5

<210> 152
<211> 34
<212> DNA
<213> Hepatitis B virus

<400> 152
cgcaagctta tgttgatagg ataggggcat ttgg

34

<210> 153
<211> 7
<212> PRT
<213> Hepatitis B virus

<400> 153
Leu Ile Pro Ala Asn Pro Pro
1 5

<210> 154
<211> 31
<212> DNA
<213> Hepatitis B virus

<400> 154
cgcaagctta taggataggg gcatttggtg g

31

<210> 155
<211> 6
<212> PRT
<213> Hepatitis B virus

<400> 155
Ile Pro Ala Asn Pro Pro
1 5

<210> 156
<211> 28
<212> DNA
<213> Hepatitis B virus

<400> 156
gcgaagctta gataggggca ttggtg

28

<210> 157
<211> 6
<212> PRT
<213> Hepatitis B virus

<400> 157
Pro Ala Asn Pro Pro Arg
1 5

<210> 158
<211> 28
<212> DNA
<213> Hepatitis B virus

<400> 158
cgcaagctta aggggcattt ggtggtct

28

<210> 159
<211> 7
<212> PRT
<213> Hepatitis B virus

<400> 159
Cys Pro Ala Asn Pro Pro Arg
1 5

<210> 160
<211> 7
<212> PRT
<213> Hepatitis B virus

<400> 160
Ala Asn Pro Pro Arg Tyr Ala
1 5

<210> 161
<211> 31
<212> DNA
<213> Hepatitis B virus

<400> 161
gcgaagctta gcaaggggca ttggtggtc t

31

<210> 162
<211> 30
<212> DNA
<213> Hepatitis B virus

<400> 162
gcgaagctta ggcatttggt ggtctatagc

30

<210> 163
 <211> 8
 <212> PRT
 <213> Hepatitis B virus

<400> 163
 Cys Ala Asn Pro Pro Arg Tyr Ala
 1 5

<210> 164
 <211> 32
 <212> DNA
 <213> Hepatitis B virus

<400> 164
 gcgaagctta gcaggcattt ggtggctctat aa

32

<210> 165
 <211> 7
 <212> PRT
 <213> Hepatitis B virus

<400> 165
 Asn Pro Pro Arg Tyr Ala Pro
 1 5

<210> 166
 <211> 31
 <212> DNA
 <213> Hepatitis B virus

<400> 166
 cgcaagctta atttgggtgt ctataagctg g

31

<210> 167
 <211> 8
 <212> PRT
 <213> Plasmodium falciparum

<400> 167
 Asn Ala Asn Pro Asn Val Asp Pro
 1 5

<210> 168
 <211> 6
 <212> PRT
 <213> Homo sapiens

<400> 168
 Asn Tyr Lys Lys Pro Lys
 1 5

<210> 169
<211> 7
<212> PRT
<213> Hepatitis B virus

<400> 169
Lys Arg Gly Pro Arg Thr His
1 5

<210> 170
<211> 21
<212> PRT
<213> Homo sapiens

<400> 170
Leu His Pro Asp Glu Thr Lys Asn Met Leu Glu Met Ile Phe Thr Pro
1 5 10 15

Arg Asn Ser Asp Arg
20

<210> 171
<211> 5
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 171
Arg Ile Lys Gln Ile
1 5

<210> 172
<211> 11
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 172
Arg Ile Lys Gln Ile Gly Met Pro Gly Gly Lys
1 5 10

<210> 173
<211> 10
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 173
Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu
1 5 10

<210> 174
<211> 14
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 174
Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp
1 5 10

<210> 175
 <211> 33
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 175
 Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His
 1 5 10 15
 Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile
 20 25 30

Leu

<210> 176
 <211> 16
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 176
 His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg
 1 5 10 15

<210> 177
 <211> 36
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 177
 Tyr Thr His Ile Ile Tyr Ser Leu Ile Glu Gln Ser Gln Asn Gln Gln
 1 5 10 15
 Glu Lys Asn Glu Gln Glu Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu
 20 25 30

Trp Asn Trp Phe
 35

<210> 178
 <211> 26
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 178
 Tyr Thr His Ile Ile Tyr Ser Leu Ile Glu Gln Ser Gln Asn Gln Gln
 1 5 10 15
 Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu
 20 25

<210> 179
 <211> 19
 <212> PRT
 <213> Homo sapiens

<400> 179

Gly Arg Glu Arg Arg Pro Arg Leu Ser Asp Arg Pro Gln Leu Pro Tyr
1 5 10 15

Leu Glu Ala

<210> 180

<211> 20

<212> PRT

<213> Homo sapiens

<400> 180

Arg Glu Gln Arg Arg Phe Ser Val Ser Thr Leu Arg Asn Leu Gly Leu
1 5 10 15

Gly Lys Lys Ser
20

<210> 181

<211> 18

<212> PRT

<213> Plasmodium yoelii

<400> 181

Pro Asn Lys Leu Pro Arg Ser Thr Ala Val Val His Gln Leu Lys Arg
1 5 10 15

Lys His

<210> 182

<211> 11

<212> PRT

<213> Plasmodium yoelii

<400> 182

Thr Ala Val Val His Gln Leu Lys Arg Lys His
1 5 10

<210> 183

<211> 22

<212> PRT

<213> Plasmodium vivax

<400> 183

Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Ala
1 5 10 15

Ala Gly Gln Pro Ala Gly
20

<210> 184
 <211> 12
 <212> PRT
 <213> Avian leukosis virus

<400> 184
 Asn Gln Ser Trp Thr Met Val Ser Pro Ile Asn Val
 1 5 10

<210> 185
 <211> 16
 <212> PRT
 <213> Avian leukosis virus

<400> 185
 Met Ile Lys Asn Gly Thr Lys Arg Thr Ala Val Thr Phe Gly Ser Val
 1 5 10 15

<210> 186
 <211> 19
 <212> PRT
 <213> Foot-and-mouth disease virus

<400> 186
 Pro Asn Leu Arg Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala Arg
 1 5 10 15

Thr Leu Pro

<210> 187
 <211> 26
 <212> PRT
 <213> Foot-and-mouth disease virus

<400> 187
 Arg Tyr Asn Arg Asn Ala Val Pro Asn Leu Arg Gly Asp Leu Gln Val
 1 5 10 15

Leu Ala Gln Lys Val Ala Arg Thr Leu Pro
 20 25

<210> 188
 <211> 16
 <212> PRT
 <213> Hepatitis C virus

<400> 188
 Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
 1 5 10 15

Leu

<210> 189
<211> 34
<212> PRT
<213> Hepatitis B virus

<400> 189
Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg
1 5 10 15
Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg Glu Ser
20 25 30

Gln Cys

<210> 190
<211> 16
<212> PRT
<213> Hepatitis B virus

<400> 190
Gly Ile Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val Val Ser
1 5 10 15

<210> 191
<211> 17
<212> PRT
<213> Hepatitis B virus

<400> 191
Gly Ile Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val Val Ser
1 5 10 15

Cys

<210> 192
<211> 20
<212> PRT
<213> Plasmodium falciparum

<400> 192
Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro
1 5 10 15

Cys Ser Val Thr
20

<210> 193
<211> 9
<212> PRT
<213> Plasmodium vivax

<400> 193
Asp Arg Ala Xaa Gly Gln Pro Ala Gly
1 5

<210> 194
 <211> 9
 <212> PRT
 <213> Plasmodium vivax

<400> 194
 Ala Asn Gly Ala Xaa Asx Gln Pro Gly
 1 5

<210> 195
 <211> 11
 <212> PRT
 <213> Plasmodium vivax

<400> 195
 Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala
 1 5 10

<210> 196
 <211> 19
 <212> PRT
 <213> Plasmodium vivax

<400> 196
 Tyr Leu Asp Lys Val Arg Ala Thr Val Gly Thr Glu Trp Thr Pro Cys
 1 5 10 15

Ser Val Thr

<210> 197
 <211> 21
 <212> PRT
 <213> Plasmodium vivax

<400> 197
 Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro Ala Gly Asp Arg Ala Ala
 1 5 10 15

Gly Gln Pro Ala Gly
 20

<210> 198
 <211> 18
 <212> PRT
 <213> Plasmodium vivax

<400> 198
 Asp Arg Ala Ala Gly Gln Pro Ala Gly Asp Arg Ala Asp Gly Gln Pro
 1 5 10 15

Ala Gly

<210> 199
<211> 36
<212> PRT
<213> Plasmodium vivax

<400> 199
Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
1 5 10 15
Pro Gly Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp
20 25 30
Asp Gln Pro Gly
35

<210> 200
<211> 18
<212> PRT
<213> Plasmodium vivax

<400> 200
Ala Asn Gly Ala Gly Asn Gln Pro Gly Ala Asn Gly Ala Gly Asp Gln
1 5 10 15
Pro Gly

<210> 201
<211> 19
<212> PRT
<213> Plasmodium vivax

<400> 201
Gln Ala Asn Gly Ala Asp Asn Gln Pro Gly Ala Asn Gly Ala Asp Asp
1 5 10 15
Gln Pro Gly

<210> 202
<211> 22
<212> PRT
<213> Plasmodium vivax

<400> 202
Ala Pro Gly Ala Asn Gln Glu Gly Gly Ala Ala Ala Pro Gly Ala Asn
1 5 10 15
Gln Glu Gly Gly Ala Ala
20

<210> 203
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with an NcoI restriction site

<400> 203
 ttgggcatg gacatcgacc ctta 24

<210> 204
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with an EcoRI restriction site.

<400> 204
 gcggagctct ttttccaaat taattaacac ccac 34

<210> 205
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with EcoRI and SacI restriction
 sites and an inserted lysine codon

<400> 205
 cgcgagctcg atccagcgtc tagagagacc 30

<210> 206
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Hepatitis B
 virus PCR primer with HindIII restriction site

<400> 206
 cgcaagctta aacaacagta gtctccggaa g 31

<210> 207
 <211> 14
 <212> PRT
 <213> Hepatitis B virus

<400> 207
 Cys Gln Glu Lys Gln Leu Asp Glu Asn Ala Asn Val Gln Leu
 1 5 10

<210> 208
<211> 13
<212> PRT
<213> Hepatitis B virus

<400> 208
Cys Ser Lys Lys Gly Pro Arg Ala Ser Gly Asn Leu Ile
1 5 10

<210> 209
<211> 21
<212> PRT
<213> Hepatitis B virus

<400> 209
Cys Leu Leu Thr Glu His Arg Met Thr Trp Asp Pro Ala Gln Pro Pro
1 5 10 15

Arg Asp Leu Thr Glu
20

<210> 210
<211> 22
<212> PRT
<213> Hepatitis B virus

<400> 210
Cys Val Lys Arg Met Lys Glu Ser Arg Leu Glu Asp Thr Gln Lys His
1 5 10 15

Arg Val Asp Phe Leu Gln
20

<210> 211
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 211
Cys Met Gln Leu Arg Ser
1 5

<210> 212
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 212
Cys Arg Phe Ser Ile Asn
1 5

<210> 213
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 213
Cys Ala Val Pro Arg
1 5

<210> 214
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 214
Cys Val Ile Pro Arg Ser
1 5

<210> 215
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 215
Cys Phe Ile Pro Val
1 5

<210> 216
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 216
Cys Thr Val Ser Gly Ala
1 5

<210> 217
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cytochrome
P-450 fragment

<400> 217
Cys Thr Leu Ser Gly Glu
1 5

<210> 218
<211> 20
<212> PRT
<213> Hepatitis B virus

<400> 218
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Val
1 5 10 15

Val Ser Tyr Val
20

<210> 219
<211> 63
<212> DNA
<213> Hepatitis B virus

<400> 219
gctacctggg tgggtggttaa ttggaagat ccagcgtota gagacctagt agtcagttat 60
gtc 63

<210> 220
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 75 of Hepatitis B core

<400> 220
Thr Trp Val Gly Val Lys Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 221
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Lysine codon
 aaa inserted to make HBC- K75 mutant

<400> 221
 gctacctggg tgggtgttaa aaattggaa gatccagcgt c 41

<210> 222
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: K inserted at
 amino acid position 76 of Hepatitis B core

<400> 222
 Thr Trp Val Gly Val Asn Lys Leu Glu Asp Pro Ala Ser Arg Asp Leu
 1 5 10 15
 Val Val Ser Tyr Val
 20

<210> 223
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Lysine codon
 aaa inserted to make HBC-K76 mutant

<400> 223
 ttaataaatt ggaagatcca gcgtcta 27

<210> 224
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: K inserted at
 position 77 of Hepatitis B virus core

<400> 224
 Thr Trp Val Gly Val Asn Leu Lys Glu Asp Pro Ala Ser Arg Asp Leu
 1 5 10 15
 Val Val Ser Tyr Val
 20

<210> 225
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBC-K77 mutant

<400> 225
ttaatttgaa agaagatcca gcgtcta

27

<210> 226
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 78 of Hepatitis B core

<400> 226
Thr Trp Val Gly Val Asn Leu Glu Lys Asp Pro Ala Ser Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 227
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBC-K78 mutant

<400> 227
ttaatttgga aaaagatcca gcgtctagag ac

32

<210> 228
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 79 fo Hepatitis B core.

<400> 228
Thr Trp Val Gly Val Asn Leu Glu Asp Lys Pro Ala Ser Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 229
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K79 mutant

<400> 229
ttaatttgga agataaacca gcgtctagag acctag

36

<210> 230
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 79 of Hepatitis B core

<400> 230
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Lys Ala Ser Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 231
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K80 mutant

<400> 231
ttaatttgga agatccaaaa gcgtctagag acctagtag

39

<210> 232
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 81 of Hepatitis B core

<400> 232
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Lys Ser Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 233
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K81 mutant

<400> 233
ttaatttgga agatccagcg aaatctagag acctagtagt cag

43

<210> 234
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 82 of Hepatitis B core

<400> 234
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Lys Arg Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 235
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Lysine codon
aaa inserted to make HBc-K82 mutant

<400> 235
ttaatttgga agatccagcg tctaaaagag acctagtagt cagtt

45

<210> 236
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: K inserted at
amino acid position 83 to Hepatitis B core

<400> 236
Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Lys Asp Leu
1 5 10 15

Val Val Ser Tyr Val
20

<210> 237
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Lysine codon
 aaa inserted to make HBc-K83 mutant

 <400> 237
 ttaatttgga agatccagcg tctagaaaag acctagtagt cagttatgtc 50

 <210> 238
 <211> 21
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: K inserted at
 amino acid position 83 of Hepatitis B core

 <400> 238
 Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Lys Leu
 1 5 10 15
 Val Val Ser Tyr Val
 20

 <210> 239
 <211> 50
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Lysine codon
 aaa inserted to make HBc-K84 mutant

 <400> 239
 ttaatttgga agatccagcg tctagagaca aactagtagt cagttatgtc 50

 <210> 240
 <211> 21
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: K inserted at
 amino acid position 85 of Hepatitis B core

 <400> 240
 Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp Leu Lys
 1 5 10 15
 Val Val Ser Tyr Val
 20

 <210> 241
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Lysine codon
 aaa inserted to make HBC-K85 mutant

<400> 241
 ctcgagagac ctaaaagtag tcagttatgt c 31

<210> 242
 <211> 36
 <212> PRT
 <213> Hepatitis B virus

<400> 242
 Gly Ile Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser
 1 5 10 15
 Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn
 20 25 30
 Glu Gln Glu Leu
 35

<210> 243
 <211> 102
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: human
 cytochrome P450

<400> 243
 aatttggatg tgggaagatc gtgagatcaa caattatacc agcctgatac attctttaat 60
 tgaagagtcc cagaaccaac aggagaaaaa tgaacaagag ct 102

<210> 244
 <211> 94
 <212> DNA
 <213> Hepatitis B virus

<400> 244
 ctgttcatt tttctctgt tggttctggg actcttcaat taaagaatgt atcaggctgg 60
 tataattggt gatctcaga tcttcccaca tcca 94

<210> 245
 <211> 6
 <212> PRT
 <213> Hepatitis B virus

<400> 245
 Met Asp Ile Asp Pro Tyr
 1 5

<210> 246
 <211> 217
 <212> PRT
 <213> *Spermophilus variegatus*

<400> 246
 Met Tyr Leu Phe His Leu Cys Leu Val Phe Ala Cys Val Pro Cys Pro
 1 5 10 15
 Thr Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp
 20 25 30
 Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu Asn Phe
 35 40 45
 Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp Thr Ala
 50 55 60
 Ala Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys Ser Pro
 65 70 75 80
 His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Glu Glu Leu Thr
 85 90 95
 Arg Leu Ile Thr Trp Met Ser Glu Asn Thr Thr Glu Glu Val Arg Arg
 100 105 110
 Ile Ile Val Asp His Val Asn Asn Thr Trp Gly Leu Lys Val Arg Gln
 115 120 125
 Thr Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln His Thr Val
 130 135 140
 Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Ala Pro
 145 150 155 160
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu His Thr
 165 170 175
 Val Ile Arg Arg Arg Gly Gly Ser Arg Ala Ala Arg Ser Pro Arg Arg
 180 185 190
 Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
 195 200 205
 Arg Ser Gln Ser Pro Ala Ser Asn Cys
 210 215

<210> 247
 <211> 183
 <212> PRT
 <213> *Hepatitis B virus*

<400> 247
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160

Pro Ser Pro Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175

Gln Ser Arg Glu Ser Gln Cys
180

<210> 248

<211> 185

<212> PRT

<213> Hepatitis B virus

<400> 248

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Gln Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
145 150 155 160

Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
165 170 175

Arg Ser Gln Ser Arg Glu Ser Gln Cys
180 185

<210> 249

<211> 185

<212> PRT

<213> Hepatitis B virus

<400> 249

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala
65 70 75 80

Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Val Gly Leu Lys
85 90 95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
145 150 155 160

Arg Thr Pro Ser Pro Arg Arg Arg Pro Ser Gln Ser Pro Arg Arg Arg
165 170 175

Arg Ser Gln Ser Arg Glu Ser Gln Cys
180 185

<210> 250

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 250
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Asp
 20 25 30
 Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala
 65 70 75 80
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys
 85 90 95
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 100 105 110
 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140
 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
 145 150 155 160
 Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
 165 170 175
 Gln Ser Arg Glu Ser Gln Cys
 180

<210> 251
 <211> 183
 <212> PRT
 <213> Marmota monax

<400> 251
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu
 1 5 10 15
 Asn Phe Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp
 20 25 30
 Thr Ala Thr Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Asp Glu
 50 55 60
 Leu Thr Lys Leu Ile Ala Trp Met Ser Ser Asn Ile Thr Ser Glu Gln
 65 70 75 80
 Val Arg Thr Ile Ile Val Asn His Val Asn Asp Thr Trp Gly Leu Lys
 85 90 95

Val Arg Gln Ser Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln
 100 105 110
 His Thr Val Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 115 120 125
 Pro Ala Pro Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 130 135 140
 Glu His Thr Val Ile Arg Arg Gly Gly Ala Arg Ala Ser Arg Ser
 145 150 155 160
 Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro
 165 170 175
 Arg Arg Arg Arg Ser Gln Cys
 180

<210> 252
 <211> 26
 <212> PRT
 <213> Bos taurus

<400> 252
 Ser Thr Pro Pro Leu Pro Trp Pro Trp Ser Pro Ala Ala Leu Arg Leu
 1 5 10 15
 Leu Gln Arg Pro Pro Glu Glu Pro Ala Ala
 20 25

<210> 253
 <211> 17
 <212> PRT
 <213> Ebola virus

<400> 253
 Ala Thr Gln Val Glu Gln His His Arg Arg Thr Asp Asn Asp Ser Thr
 1 5 10 15
 Ala

<210> 254
 <211> 17
 <212> PRT
 <213> Ebola virus

<400> 254
 His Asn Thr Pro Val Tyr Lys Leu Asp Ile Ser Glu Ala Thr Gln Val
 1 5 10 15
 Glu

<210> 255
 <211> 17
 <212> PRT
 <213> Ebola virus

<400> 255
 Gly Lys Leu Gly Ile Thr Asn Thr Ile Ala Gly Val Ala Val Leu
 1 5 10 15

Ile

<210> 256
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:flexible linker
 arm

<400> 256
 Gly Gly Gly Gly Ser Gly Gly Gly Gly Thr
 1 5 10

<210> 257
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: flexible
 linker arm

<400> 257
 Gly Gly Gly Gly Ser Gly Gly Gly Gly
 1 5

<210> 258
 <211> 513
 <212> DNA
 <213> Plasmodium falciparum

<220>
 <221> CDS
 <222> (1)..(513)

<400> 258
 atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30

acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60

cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att 240
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80

aac gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg 288
 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
 85 90 95

gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat 336
 Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 100 105 110

atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc 384
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 115 120 125

act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg 432
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140

tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta 480
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160

tca aca ctt ccg gag act act gtt gtt tag taa 513
 Ser Thr Leu Pro Glu Thr Thr Val Val
 165 170

<210> 259

<211> 169

<212> PRT

<213> Plasmodium falciparum

<400> 259

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80

Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
 85 90 95

Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 100 105 110

Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 115 120 125

Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140

Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160
 Ser Thr Leu Pro Glu Thr Thr Val Val
 165

<210> 260
 <211> 513
 <212> DNA
 <213> Plasmodium falciparum

<220>
 <221> CDS
 <222> (1)..(513)

<400> 260
 atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gga att aac 240
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Gly Ile Asn
 65 70 75 80
 gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg gag 288
 Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Glu
 85 90 95
 ctc gat cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat 336
 Leu Asp Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 100 105 110
 atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc 384
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 115 120 125
 act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg 432
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140
 tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta 480
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160
 tca aca ctt ccg gag act act gtt gtt tag taa 513
 Ser Thr Leu Pro Glu Thr Thr Val Val
 165 170

<210> 261
 <211> 169
 <212> PRT
 <213> Plasmodium falciparum

<400> 261
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Gly Ile Asn
 65 70 75 80
 Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Glu
 85 90 95
 Leu Asp Pro Ala Ser Arg Asp Leu Val Ser Tyr Val Asn Thr Asn
 100 105 110
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 115 120 125
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160
 Ser Thr Leu Pro Glu Thr Thr Val Val
 165

<210> 262
 <211> 519
 <212> DNA
 <213> Plasmodium falciparum

<220>
 <221> CDS
 <222> (1)..(519)

<400> 262
 atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat cca gcg 240
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
 65 70 75 80

tct aga gac cta gta gtc agt tat gtc aac act aat atg ggc cta aag 288
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95

ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc act ttt gga aga 336
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110

gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg tgg att cgc act 384
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125

cct cca gct tat aga cca cca aat gcc cct atc cta tca aca ctt ccg 432
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140

gag act act gtt gtt gga att gaa tat ctg aac aaa atc cag aac tct 480
Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser
145 150 155 160

ctg tcc acc gaa tgg tct ccg tgc tcc gtt acc tag taa 519
Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
165 170

<210> 263

<211> 171

<212> PRT

<213> Plasmodium falciparum

<400> 263

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
65 70 75 80
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
100 105 110
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140
Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser
145 150 155 160
Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
165 170

<210> 264

<211> 516

<212> DNA

<213> Plasmodium falciparum

<220>
 <221> CDS
 <222> (1)..(516)

<400> 264
 atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att 240
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 aac gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg 288
 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
 85 90 95
 gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat 336
 Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 100 105 110
 atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc 384
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 115 120 125
 act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg 432
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140
 tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta 480
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160
 tca aca ctt ccg gag act act gtt gtt tgc tag taa 516
 Ser Thr Leu Pro Glu Thr Thr Val Val Cys
 165 170

<210> 265
 <211> 170
 <212> PRT
 <213> Plasmodium falciparum

<400> 265
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
 85 90 95
 Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 100 105 110
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 115 120 125
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 130 135 140
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 145 150 155 160
 Ser Thr Leu Pro Glu Thr Thr Val Val Cys
 165 170

<210> 266

<211> 579

<212> DNA

<213> Plasmodium falciparum

<220>

<221> CDS

<222> (1)..(579)

<400> 266

atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att 240
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 aac gct aat ccg aac gct aat ccg aac gct aat ccg aac gct aat ccg 288
 Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
 85 90 95
 gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat 336
 Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 100 105 110

atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc 384
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
115 120 125

act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg 432
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
130 135 140

tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta 480
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
145 150 155 160

tca aca ctt ccg gag act act gtt gtt gga att gaa tat ctg aac aaa 528
Ser Thr Leu Pro Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys
165 170 175

atc cag aac tct ctg tcc acc gaa tgg tct ccg tgc tcc gtt acc tag 576
Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
180 185 190

taa 579

<210> 267
<211> 191
<212> PRT
<213> Plasmodium falciparum

<400> 267
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
65 70 75 80
Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
85 90 95
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
100 105 110
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
115 120 125
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
130 135 140
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
145 150 155 160
Ser Thr Leu Pro Glu Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys
165 170 175
Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
180 185 190

<210> 268
<211> 591
<212> DNA
<213> Plasmodium falciparum

<220>
 <221> CDS
 <222> (1)..(591)

<400> 268
 atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att 240
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 aac gcg aat ccg aac gtg gat ccg aat gcc aac cct aac gcc aac cca 288
 Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro
 85 90 95
 aat gcg aac cca gag ctc cca gcg tct aga gac cta gta gtc agt tat 336
 Asn Ala Asn Pro Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr
 100 105 110
 gtc aac act aat atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac 384
 Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His
 115 120 125
 att tct tgt ctc act ttt gga aga gaa aca gtt ata gag tat ttg gtg 432
 Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val
 130 135 140
 tct ttc gga gtg tgg att cgc act cct cca gct tat aga cca cca aat 480
 Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn
 145 150 155 160
 gcc cct atc cta tca aca ctt ccg gag act act gtt gtt gga att gaa 528
 Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr Val Val Gly Ile Glu
 165 170 175
 tat ctg aac aaa atc cag aac tct ctg tcc acc gaa tgg tct ccg tgc 576
 Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys
 180 185 190
 tcc gtt acc tag taa 591
 Ser Val Thr
 195

<210> 269
 <211> 195
 <212> PRT
 <213> Plasmodium falciparum

<400> 269
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro
 85 90 95
 Asn Ala Asn Pro Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr
 100 105 110
 Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His
 115 120 125
 Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val
 130 135 140
 Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn
 145 150 155 160
 Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr Val Val Gly Ile Glu
 165 170 175
 Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys
 180 185 190
 Ser Val Thr
 195

<210> 270
 <211> 561
 <212> DNA
 <213> Human immunodeficiency virus type 1

<220>
 <221> CDS
 <222> (1)..(561)

<400> 270
 atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 tcg ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60

cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att	240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile	
65 70 75 80	
caa tgg atg gaa tgg gat cgt gag atc aac aat tat acc agc ctg ata	288
Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile	
85 90 95	
cat tct tta att gaa gag tcc cag aac caa cag gag aaa aat gaa caa	336
His Ser Leu Ile Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln	
100 105 110	
gag ctg cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat	384
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn	
115 120 125	
atg ggc cta aag ttc agg caa ctg ttg tgg ttt cac att tct tgt ctg	432
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu	
130 135 140	
act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg	480
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val	
145 150 155 160	
tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta	528
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu	
165 170 175	
tca aca ctt ccg gag act act gtt gtt tag taa	561
Ser Thr Leu Pro Glu Thr Thr Val Val	
180 185	

<210> 271
 <211> 185
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 271
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
65 70 75 80
Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile
85 90 95
His Ser Leu Ile Glu Glu Ser Gln Asn Gln Glu Lys Asn Glu Gln
100 105 110
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
115 120 125
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
130 135 140
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
145 150 155 160
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
165 170 175

Ser Thr Leu Pro Glu Thr Thr Val Val
180 185

<210> 272
<211> 564
<212> DNA
<213> Human immunodeficiency virus type 1

<220>
<221> CDS
<222> (1) .. (564)

<400> 272
atg gac atc gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
1 5 10 15

tgc ttt ttg cct tct gac ttc ttt cct tca gta cga gat ctt cta gat 96
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
20 25 30

acc gcc tca gct ctg tat cgg gaa gcc tta gag tct cct gag cat tgt 144
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg ggg gaa 192
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60

cta atg act cta gct acc tgg gtg ggt gtt aat ttg gaa gat gga att 240
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
65 70 75 80

caa tgg atg gaa tgg gat cgt gag atc aac aat tat acc agc ctg ata 288
Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile
85 90 95

cat tct tta att gaa gag tcc cag aac caa gag gag aaa aat gaa caa 336
His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln
100 105 110

gag ctc cca gcg tct aga gac cta gta gtc agt tat gtc aac act aat 384
Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
115 120 125

atg ggc cta aag ttc agg caa ctc ttg tgg ttt cac att tct tgt ctc 432
Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
130 135 140

act ttt gga aga gaa aca gtt ata gag tat ttg gtg tct ttc gga gtg 480
Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
145 150 155 160

tgg att cgc act cct cca gct tat aga cca cca aat gcc cct atc cta 528
Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
165 170 175

tca aca ctt ccg gag act act gtt gtt tgc tag taa
 Ser Thr Leu Pro Glu Thr Thr Val Val Cys
 180 185

564

<210> 273
 <211> 186
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 273
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 1 5 10 15
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 20 25 30
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 40 45
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 50 55 60
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Gly Ile
 65 70 75 80
 Gln Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu Ile
 85 90 95
 His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln
 100 105 110
 Glu Leu Pro Ala Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn
 115 120 125
 Met Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu
 130 135 140
 Thr Phe Gly Arg Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val
 145 150 155 160
 Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu
 165 170 175
 Ser Thr Leu Pro Glu Thr Thr Val Val Cys
 180 185

<210> 274
 <211> 651
 <212> DNA
 <213> *Spermophilus variegatus*

<400> 274
 atgtatcttt ttcacctgtg cttgtttttt gccgtgtgttc catgtcctac tgttcaagcc 60
 tccaagctgt gccctgggatg gctttgggac atggacatag atccctataa agaatttggt 120
 tcttcttatac agttgttgaa ttttcttctc ttggactttt ttcctgatct caatgcattg 180
 gtggacaactg ctgctgctct ttatgaagaa gaattaacag gtaggagaca ttgtctctct 240
 catcatactg ctattagaca ggccttagtg tgttgggaag aattaactag attaattaca 300
 tggatgagtg aaaaatacaac agaagaagtt agaagaatta ttgttgatca tgtcaataat 360
 acttggggag ttaaagtaag acagacttta tggtttcatt tatcatgtct tacttttgga 420
 caacacacag tccaagaatt tttggttagt tttggagatg ggattagaac tccagctcct 480
 tatagaccac ctaatgcacc cattttatca actcttcagg aacatcacgt cattaggaga 540
 agaggagggt caagagctgc taggtcccc cgaagacgca ctccctctcc tcgcaggaga 600
 aggtctcaat caccgcgtcg cagacgtctc caatctccag ctccaactg c 651

<210> 275
 <211> 549
 <212> DNA
 <213> Hepatitis B virus

<400> 275
 atggacatcg acccttataa agaatttga gctactgtgg agttactctc gtttttgccct 60
 tctgacttct ttccttcagt acgagatctt ctgatacccg cctcagctct gtatcgggaa 120
 gccttagagt ctcttgagca ttgttcacct caccatactg cactcaggca agcaattctt 180
 tgctgggggg aactaatgac tctagctacc tgggtgggtg ttaatttggg agatccagcg 240
 tctagagacc tagtagtcag ttatgtcaac actaatatgg gcctaaagt caggcaactc 300
 ttgtgggttc acatttcttg tctcactttt ggaagagaaa cagtatatga gtatttgggt 360
 tctttcggag tgtggattcg cactcctcca gcttatagac caccaaatgc ccctatccta 420
 tcaacacttc cggagactac tgttgttaga cgacgggacc gggtccctag aagaagaact 480
 ccctcgctct gcagacgaag gtctcaatcg ccgcgtcgca gaagatctca atctcgggaa 540
 tctcaatgt 549

<210> 276
 <211> 554
 <212> DNA
 <213> Hepatitis B virus

<400> 276
 atggacattg acccttataa agaatttga gctactgtgg agttactctc gtttttgccct 60
 tctgacttct ttccttcagt acgagatctc ctgacacccg cctcagctct gtatcgagaa 120
 gccttagagt ctcttgagca ttgttcacct caccatactg cactcaggca agccattctc 180
 tgctgggggg aattgatgac tctagctacc tgggtgggtg ataatttggc agatccagca 240
 tccagagatc tagtagtcaa ttatgttaat actaacatgg gtttaaagat caggcaacta 300
 ttgtgggttc atatatcttg ccttactttt ggaagagaga ctgtacttga atatttggct 360
 tctttcggag tgtggattcg cactcctcca gcttatagac caccaaatgc ccctatccta 420
 tcaacacttc cggaaactac tgttgttaga cgacgggacc gaggcaggtc ccctagaaga 480
 agaactccct cgcttcgcag acgcagatct caatcgccgc gtgcgagaag atctcaatct 540
 cgggaatctc aatgt 555

<210> 277
 <211> 555
 <212> DNA
 <213> Hepatitis B virus

<400> 277
 atggacattg acccttataa agaatttga gctactgtgg agttactctc gtttttgccct 60
 tctgacttct ttccttcagt acgagatctc ctgacacccg cctcagctct gtatcgagaa 120
 gccttagagt ctcttgagca ttgttcacct caccatactg cactcaggca agccattctc 180
 tgctgggggg aattgatgac tctagctacc tgggtgggtg ataatttggc agatccagca 240
 tctcagggatc ttgtagtcaa ttatgttaat actaacatgg gtttaaagat caggcaacta 300
 ttgtgggttc atatatcttg ccttactttt ggaagagaga ctgtacttga atatttggct 360
 tctttcggag tgtggattcg cactcctcca gcttatagac caccaaatgc ccctatccta 420
 tcaacacttc cggaaactac tgttgttaga cgacgggacc gaggcaggtc ccctagaaga 480
 agaactccct cgcttcgcag acgcagatct caatcgccgc gtgcgagaag atctcaatct 540
 cgggaatctc aatgt 555

<210> 278
 <211> 549
 <212> DNA
 <213> Hepatitis B virus

<400> 278
 atggacattg acccttataa agaatttga gctactgtgg agttactctc gtttttgccct 60
 tctgacttct ttccttcagt acgagatctt ctgatacccg ccgcagctct gtatcgggaa 120
 gccttagagt ctcttgagca ttgttcacct caccatactg cactcaggca agcaattctt 180
 tgctgggggg acttaagtac tctagctacc tgggtgggtg ctaattttaga agatccagca 240
 tctagggacc tagtagtcag ttatgtcaac actaatgtgg gcctaaagt cagacaatta 300

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ttgtggtttc acatttcttg tctcactttt ggaagagaaa cggttctaga gtatttgggt 360
tcttttggag tgtggattcg cactcctcca gcttatagac caccaaatgc ccctatccta 420
tcaacgcttc cggagactac tgttgttaga cgcagaggca ggtcccctag aagaagaact 540
ccctcgcttc gcagacgaag atctcaatcg ccgcgtcgca gaagatctca atctcgggaa 540
tctcaatgt

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<210> 279
<211> 549
<212> DNA
<213> Marmota monax

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```

<400> 279
atggccttgg ggcattggaca tagatcctta taaagaattt ggttcattct atcagttgtt 60
gaattttctt cctttggact tctttcctga tcttaatgct ttggtggaca ctgctactgc 120
cttgatgaa gaagaactaa caggtaggga acattgctct ccgcaccata cagctattag 180
acaagcttta gtatgctggg atgaattaac taaattgata gcttgatga gctctaact 240
aactcttgaa caagtaagaa caatcattgt aaatcatgtc aatgatacct ggggacttaa 300
ggtgagacaa agttttatggt ttcatttgct atgtctcact ttcggacaac atacagtcca 360
agaattttta gtaagttttg gactatggat caggactcca gctccatata gacctcctaa 420
tgcaccatt ctctcgactc tcccggaaca tacagtcatt aggagaagag gaggtgcaag 480
agcttctagg tccccagaa gacgcactcc ctctcctcgc aggagaagat ctcaatcacc 540
gcgtcgag

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```

<210> 280
<211> 13
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: human
cytochrome P450

```

```

<400> 280
Gln Glu Lys Gln Leu Asp Glu Asn Ala Asn Val Gln Leu
1 5 10

```

```

<210> 281
<211> 7
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: modified
portion of Hepatitis B core

```

```

<400> 281
Cys Val Val Thr Thr Glu Pro
1 5

```

```

<210> 282
<211> 42
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Description of Artificial Sequence: modified
portion of Hepatitis B core

```

<400> 282
gcaagcttac tattgaattc cgcaaacac agtagtctcc gg

42

<210> 283
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: modified
portion of Hepatitis B core

<400> 283
Thr Thr Val Val Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu
1 5 10 15
Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
20 25

<210> 284
<211> 27
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: modified
portion of Hepatitis B core

<400> 284
Thr Thr Val Val Cys Gly Ile Glu Tyr Leu Asn Lys Ile Gln Asn Ser
1 5 10 15
Leu Ser Thr Glu Trp Ser Pro Ala Ser Val Thr
20 25

<210> 285
<211> 51
<212> DNA
<213> plasmid pKK223

<400> 285
ttcacacagg aaacagaatt cccggggatc cgtcgacctg cagccaagct t

51

<210> 286
<211> 38
<212> DNA
<213> plasmid pKK223

<400> 286
ttcacataag gaggaaaaaa cattggggatc cgaagctt

38

<210> 287
<211> 20
<212> PRT
<213> Plasmodium yoelii

<400> 287
 Glu Phe Val Lys Gln Ile Ser Ser Gln Leu Thr Glu Glu Trp Ser Gln
 1 5 10 15

Cys Ser Val Thr
 20

<210> 288
 <211> 14
 <212> PRT
 <213> Escherichia coli

<400> 288
 Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly Cys Asn
 1 5 10

<210> 289
 <211> 18
 <212> PRT
 <213> Escherichia coli

<400> 289
 Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
 1 5 10 15

Cys Asn

<210> 290
 <211> 18
 <212> PRT
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<400> 290
 Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
 1 5 10 15

Cys Asn

<210> 291
 <211> 10
 <212> PRT
 <213> Influenza virus

<400> 291
 Leu Ile Asp Ala Leu Leu Gly Asp Pro Cys
 1 5 10

<210> 292
 <211> 9
 <212> PRT
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<400> 292

Thr Leu Ile Asp Ala Leu Leu Gly Cys
1 5

<210> 293

<211> 42

<212> PRT

<213> Homo sapiens

<400> 293

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
20 25 30

Gly Leu Met Val Gly Gly Val Val Ile Ala
35 40

<210> 294

<211> 11

<212> PRT

<213> Homo sapiens

<400> 294

Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
1 5 10

<210> 295

<211> 33

<212> PRT

<213> Homo sapiens

<400> 295

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile
20 25 30

Gly

<210> 296

<211> 60

<212> DNA

<213> Homo sapiens

<400> 296

aattgatgcg gaatttcgtc atgacagcgg ctatgaggtg caccatcaga aactggagct 60

<210> 297

<211> 52

<212> DNA

<213> Homo sapiens

<400> 297
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<210> 298
 <211> 42
 <212> DNA
 <213> Homo sapiens

<400> 298
 aattgaagat gtcggttcta acaagggggc aattatcgag ct 42

<210> 299
 <211> 34
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<400> 299
 cgataattgc ccccttgta gaaccgacat cttc 34

<210> 300
 <211> 82
 <212> DNA
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<400> 300
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 gttttctttg ccgaagatgt cg 82

<210> 301
 <211> 83
 <212> DNA
 <213> Homo sapiens

<400> 301
 gcggagctcc gctatgacaa cccacccac cattaagccg ataattgcc ccttggttaga 60
 accgacatct tcggcaaaga aaa 83

<210> 302
 <211> 53
 <212> DNA
 <213> Homo sapiens

<400> 302
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<210> 303
 <211> 31
 <212> DNA
 <213> Homo sapiens

<400> 303
 gcgggaattc tggatgcgga atttcgtcat g 31

<210> 304
 <211> 17
 <212> DNA
 <213> Homo sapiens

<400> 304
 gcggagctcc gctatga 17

<210> 305
 <211> 31
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<400> 305
 gcgggaattc tggatgcgga atttcgtcat g 31

<210> 306
 <211> 18
 <212> DNA
 <213> Homo sapiens

<400> 306
 gcggagctcg ataattgc 18

<210> 307
 <211> 24
 <212> PRT
 <213> Haemophilus influenzae

<400> 307
 Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly
 1 5 10 15

Cys Arg Cys Asn Asp Ser Ser Asp
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<210> 308
 <211> 23
 <212> PRT
 <213> Haemophilus influenzae

<400> 308
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys
 1 5 10 15

Arg Cys Asn Asp Ser Ser Asp
 20

<210> 309
 <211> 23
 <212> PRT
 <213> Haemophilus influenzae

<400> 309
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ala
 1 5 10 15

Arg Ala Asn Asp Ser Ser Asp
20

<210> 310
<211> 35
<212> PRT
<213> Haemophilus influenzae

<400> 310
Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
1 5 10 15

Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
20 25 30

Trp Gly Ile
35

<210> 311
<211> 35
<212> PRT
<213> Haemophilus influenzae

<400> 311
Met Gly Ile Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu
1 5 10 15

Trp Gly Cys Arg Cys Asn Asp Ser Ser Asp Glu Leu Leu Gly Trp Leu
20 25 30

Trp Gly Ile
35

<210> 312
<211> 23
<212> PRT
<213> Influenza A virus

<400> 312
Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Ala
1 5 10 15

Arg Ala Asn Asp Ser Ser Asp
20

<210> 313
<211> 19
<212> PRT
<213> Influenza A virus

<400> 313
Glu Gln Gln Ser Ala Val Asp Ala Asp Asp Ser His Phe Val Ser Ile
1 5 10 15

Glu Leu Glu